SmallSat Low Mass, Extreme Low Temperature Energy Storage

Completed Technology Project (2013 - 2014)

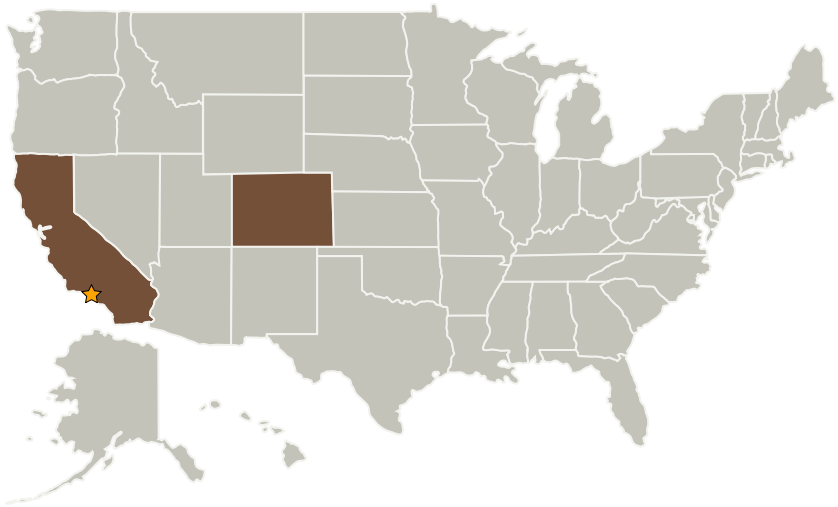
Project Introduction

High specific energy, low-temperature power systems would allow space exploration missions to do more science over longer periods, farther from the sun. This proposal is for the first year of a two-year project to ultimately space test a new low-temperature capable, battery/ultra-capacitor power system. This innovation would reduce the mass of power systems, eliminate the need for wasteful battery heaters, and increase the amount of energy available at low-temperatures. The first year of the project would be the development and ground test of the power system and the development of a CubeSat to carry the experimental system into orbit.

Anticipated Benefits

Together, these two technologies represent an attractive and important improvement in space power systems, with applications in many of NASA's future missions. Adding these two technologies as options for spaceflight will give NASA the flexibility to explore farther and do more than can be done with current technology.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Spacecraft Technology

Small Spacecraft Technology

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Colorado State University-Fort Collins	Supporting Organization	Academia	Fort Collins, Colorado

Primary U.S. Work Locations	
California	Colorado

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Project Management

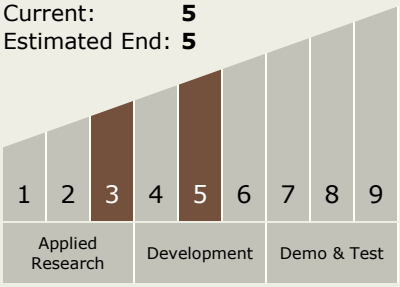
Program Director:
Christopher E Baker

Program Manager:
Roger Hunter

Principal Investigator:
Sharlene Katz

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Target Destination

Others Inside the Solar System